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Towards a Quantum Mechanical Interpretation of Homeopathy

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Summary

A quantum interpretation of the homeopathic method is presented. It is shown that provided neither the medication itself, nor the patient is observed, a net effect is expected, even at homeopathic dilutions. The temporal dilution in homeopathic exercise is explained in terms of Heisenberg's theory of energy-time indeterminacy. The results are fully compatible with thought experiments of the eminent physicist and cat specialist Erwin Schrödinger.

Introduction

Homeopathic medicine contains fewer than one molecule per dose on average (2, 8). Such preparations are made by diluting the active ingredient in a solvent, usually water, and shaking, not stirring, vigorously at each step. Though Bond (1) found evidence that shaking has a different effect from stirring a liquid, few scientists accept the "memory of water" theory (2, 8) used to explain the effect of a fraction of a molecule on a patient (5). In the pages of this distinguished journal, there has been a lively discussion of the effect of extreme time-dilution in the case of homeopathic exercise (4, 7). It is proposed that exercise in the order of minutes down to nanoseconds per month shows distinct health benefits. This paper shows that quantum mechanics gives a sound basis to explain these phenomena.

Quantum theory and spatial dilution.

The famous thought experiment of Erwin Schrödinger describes how according to quantum mechanics a cat may be in an indeterminate state between living and dead, *until* a conscious observation is made. Likewise, Reitz (6) has shown that the location of a cat inside or outside a garage is unspecified *until* the creature is observed. This phenomenon explains the curious "tunneling" of electrons and even entire cats (6) through a region of space in which they cannot exist. If we take the case of a homeopathic dilution of a single molecule over N flasks of solvent, quantum mechanics tells us that the molecule *is not* located in a particular flask *until* a conscious observation is made. In quantum parlance, the "wave function" of the

particle is said to "collapse" into a specific state (or flask) due to the act of observing. Incidentally, this is why cats resent people staring at them: the constant collapse of their wave function is a strain on their delicate senses.

The mathematically inclined reader can show that the expected energy of each flask is given by (in Dirac notation):

$$\langle E \rangle = \langle E \rangle_{flask} + \frac{1}{N} \langle E \rangle_{mol} \quad (1)$$

In words, the energy of the preparation in each flask and any patient taking it, is increased by the energy of a single molecule divided by the number of flasks, *provided* they are not observed. Nonlinear dynamics and chaos theory predict that in a highly nonlinear, or chaotic system, such a small change in net energy may have a profound effect (the famous "butterfly effect"). Many humans are notoriously chaotic, so the treatment should have an effect.

However, it is to be stressed that none of these effects can, or indeed should be observed, directly or indirectly, since this would collapse the wave function into a definite state, obliterating the subtle, quantum nature of the treatment.

Temporal dilution and energy-time indeterminacy.

Lewbel (4) proposed that exercising 60 s per month (2.6352×10^6 s), or a time dilution of one over 4.392×10^4 , could have significant, homeopathic, health benefits. Steinschneider (7) uses a value closer to 10^{-23} s per month at most, or a time dilution of one over 2.6352×10^{29} . This latter number is similar to the values used for *spatial* dilutions needed for homeopathic medicine described above. It is not immediately clear why this should be.

Quantum theory states that the change in energy (ΔE) of a system and the time taken for that change (Δt) to occur are related through energy-time indeterminacy:

$$\Delta E \Delta t \geq \frac{h}{2\pi} \quad (2)$$

Combining this with Einstein's $E=mc^2$, and given the value of Planck's constant ($h=6.6 \times 10^{-34}$ Js) the interested reader can show that a kilogram of weight per month could be lost through homeopathic exercise in the order of 10^{-51} s. This energy impact may be too large for the system, so more conservative exercise schemes using say 10^{-34} s are to be recommended. This is still many orders of magnitude away from the values proposed in the literature (4, 7).

Discussion

The idea that homeopathic treatment acts on energy levels is in itself not new (3), but no physical explanation is usually given for the nature of the energy changes. The quantum theory of homeopathy is actually at odds with leading homeopathic researchers' theories centered on the "memory of water" (2, 8). In fact, quantum theory shows up serious flaws in their experiments, in which close, conscious observation of the energy level effects was

carried out. In all fairness, the same criticism should be leveled at the critics of said experiments (5). By the very act of observation, the effects of homeopathic treatment are destroyed, or at least obscured.

This theoretical approach to homeopathy leads to a whole spectrum of new insights. Given the quantum nature of homeopathic preparations, collapse of the wave function into a definite state, i.e., causing the molecules of working substance to be in a limited number of defined flasks by conscious observation, is a real problem. Quality control should therefore only be carried out by unconscious personnel. Likewise, there is a real danger that observation of the patient, and especially of those quantum states pertaining to the ailment, leads to a collapse of his or her wave function, and may destroy the beneficial effects of treatment. This is especially true after treatment, and it is therefore recommended that the doctor has no further contact with a patient after treatment. Best of all, he should move to another town, or for the truly conscientious, commit suicide. All this is most in the patients' interest.

Cryogenics may have something to offer for practicing homeopaths in this respect. It should be possible for the doctor to be frozen after treating a patient, and being revived only after the demise of the patient. In that way, no deleterious effects of observing patients consciously after treatment should be expected.

This paper is a first step towards a full, quantum understanding of homeopathy. It is clear that quantum mechanics is the only way to understand the success of homeopathic medicine in a physical context. It is also immediately clear that doctors should avoid patients after treatment. Patients must also be aware of their responsibility in this respect. What is not yet clear is whether conscious observation of patient by doctor pre-treatment may result in the collapse of the wave-function as well. Double blind trials with doctors either seeing or not seeing their patients should be carried out in a strictly controlled environment to ascertain the importance of total patient-avoidance by homeopaths.

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